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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/015,013	12/11/2001	Carroll Philip Gossett	PGOSS-004.US.P	2062

7590 03/12/2007
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EXAMINER

TSE, YOUNG TOI

ART UNIT	PAPER NUMBER
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2611

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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Office Action Summary	Application No.		Applicant(s)	
	10/015,013		GOSSETT, CARROLL PHILIP	
	Examiner		Art Unit	
	YOUNG T. TSE		2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-7,10,11,13-21,23-25,27,28 and 30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-7,10,11,13-21,23-25,27,28 and 30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 December 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see page 7, line 3 to page 14, line 3, filed December 4, 2006, with respect to the rejection(s) of claim(s) 1-2, 4-7, 10-11, 13-21, 23-28 and 30 under 35 U.S.C. 102(b) and 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Li et al..

Information Disclosure Statement

2. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered. See page 9, line 23 to page 10, line 22.

Drawings

3. Figures 2-4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled

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"Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informalities:

At page 7, line 12, one of the words "with" should be deleted.

At page 8, line 19, there is no space between the words "gain" and "bandwidth".

At page 9, lines 16 and 20, the application Nos. 09/772,110 and 09/730,697 need to be updated, now U.S. Patent Nos. 6,982,945 and 6,829,289, respectively.

At page 11, lines 6 and 10, "a k" and " $x(n)$ " to be corrected.

At page 7, "IIR" appears to be "FIR".

At page 13, lines 19 and 20, " $b_i(n)$ have" and "k l" need to be corrected.

At page 14, lines 21 and 22, only half brackets "[" are shown in the top and bottom of the equation.

At page 15, lines 1, 6, and 14, "prediction", " $e(n)$, or" and "a l" need to be corrected.

At page 17, line 1, " μm " should be " μm ".

At page 1, lines 1 and 23, " $l=0$ " and "2" should be " $l=0$ " and "1", respectively.

At page 22, line 1, the application No. 09/738,010 should be updated, now, U.S. Patent No. 7,142,536.

Appropriate correction is required.

5. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

6. Claims 11-30 are objected to because of the following informalities:

In claim 11, lines 1 and 3, "filtering output periodic" and "filters output periodic" should be "filtering output interference periodic" and "filters output said interference periodic", respectively.

In line 2 of claims 16-18, "said periodic" should be "said interference periodic".

The dependent claims 13-15 and 19 are dependent upon claim 11.

In claim 20, lines 1 and 8, "filtering periodic" and "signal;" should be "filtering interference periodic" and "signal; and", respectively.

In line 2 of claims 23 and 23, "periodic or " should be "interference periodic or".

The dependent claims 21 and 25 are dependent upon claim 20.

In claim 27, lines 4, 5 and 6, "periodic or", "said periodic signals" and "said periodic signal;" should be "interference periodic or", "said interference periodic or quasic-periodic signals" and "said interference periodic or quasic-periodic signals; and", respectively.

The dependent claim 28 is dependent upon claim 20.

In claim 30, lines 1, 9 and 10, "filtering periodic", "coefficients;" and "in signal;" should be "filtering interference periodic", "coefficients; and" and "for signal", respectively.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 6 and 18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 6 and 18 contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. For example, the specification fails to describe that a spread spectrum receiver further comprising a modulated CDMA receiver as recited in claim 6 and a filter used to filter out an interference periodic or quasic-periodic signals in a standard modulated CDMA system as recited in claim 18.

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9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 15 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim subject matter of claim 15 lacks connection or cooperation with precedent claim 11.

The claim subject matter of claim 25 is not understood since "a signal" can't comprise "a modulated CDMA".

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

12. Claims 11 and 13-19 are rejected under 35 U.S.C. 102(e) as being anticipated by

Li et al. U.S. Publication No. 2006/0062284 A1 (hereinafter "Li").

Li discloses a method and apparatus for estimating flat fading channel in CDMA communication system, the method is implemented by using an adaptive forward

prediction technique based on lattice filter and maximum likelihood technique of Viterbi algorithm.

Fig. 4 shows a block diagram of a detection receiver which employs adaptive lattice filter-based adaptive forward prediction technique and per-survivor processing principle based technique and maximum likelihood detection technique of Viterbi algorithm. See paragraphs [0035] and [0036].

Fig. 6 shows a block diagram of an RLS lattice adaptive filter for performing estimated values of channel fading coefficients, forward and backward prediction errors. See paragraphs [0047] and [0050].

Regarding claim 11, in Fig. 6, the RLS lattice adaptive filter filters out interferences signals corresponding to predictive coefficients and outputs prediction errors which are used for signal processing, for example, by the Viterbi decoding circuit 205 and the QPSK demodulation circuit 206 of the detection receiver shown in Fig. 4.

Regarding claim 13, the detection receiver is a CDMA receiver.

Regarding claim 18, the RLS lattice adaptive filter is used in a CDMA receiver system.

Regarding claims 15-16 and 18-19, the claim subject matter either well known in the art or used in a standard in compliance with IEEE 802.11(b), as described in the background of the invention of the instant application.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 1-2, 4-7, 10, 20-21, 23-25, 27-28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over the conventional art described in the instant application in view of Li et al..

Regarding claims 1-2, 10, 20-21, 27-28 and 30, the instant application clearly describes that in the prior art, the k_m terms are used to model speech. However, note that there are resulting error terms, $e(n)=fp(n)$ and $bp(n)$, which are also generated as an output from the LPC filter. In the prior art, these error terms are simply discarded and not used in any way. However, in the present invention, the error term is kept whereas the linear predictive terms are discarded. In other words, the $e(n)=fp(n)$ and $bp(n)$ signals are passed on through the receiver, while the k_m signal is discarded. See page, 19, lines 10-18. Therefore, all the claim subject matter recited in claims 1, 20, 27 and 30 are well known in the art, except, the predictive error is being used for further processing.

As described in paragraph 12, above, Li's RLS lattice adaptive filter shown in Fig. 6 is implemented in the detection receiver of Fig. 4 for performing estimated values of channel fading coefficients, forward and backward prediction errors. Wherein the prediction errors are further used for processing, for example, by the Viterbi decoding

circuit 205 and the QPSK demodulation circuit 206 of the detection receiver shown in Fig. 4.

Therefore, it would have been obvious to one of ordinary skill in the art that the prediction error generated by a prediction filter is being used for further processing in a prior art receiver as taught by Li by a Viterbi decoder and a QPSK demodulator in a CDMA detection receiver in order to further extract the interference of the transmitted data.

Regarding claims 6 and 25, the detection receiver is a CDMA receiver.

Regarding claims 4-5, 7, and 23-24, the claim subject matter either well known in the art or used in a standard in compliance with IEEE 802.11(b), as described in the background of the invention of the instant application.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Rijnberg et al. relates to a transmitter and a receiver, the receiver comprises an adder for combining a residual or prediction error with predicted digital information to generate a digital signal.

Udaya Bhaskar et al. relates to a system determines a voicing measure as a measure of the degree of signal periodicity and uses the determined voicing measure to quantize the spectral magnitude of the slowly evolving waveform (SEW) and the modeling of the SEW and rapidly evolving eave (REW) phase spectra.

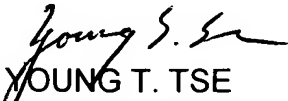
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Christoph relates to a method using LPC analysis, which can be efficiently implemented, for example, using the gradient adaptive lattice (GAL) algorithm.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YOUNG T. TSE whose telephone number is (571) 272-3051. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


YOUNG T. TSE
Primary Examiner
Art Unit 2611